

Dr. Eric Zielinski
Essential Oils to Boost Energy, Mood & Brain Function

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Why we're here

Deaths By Cause in America



128,000

"Deaths and serious reactions outside of hospitals would **significantly** increase the totals."

Source: Journal of Law, Medicine and Ethics, 2013, Vol. 14, No. 3: 590-610

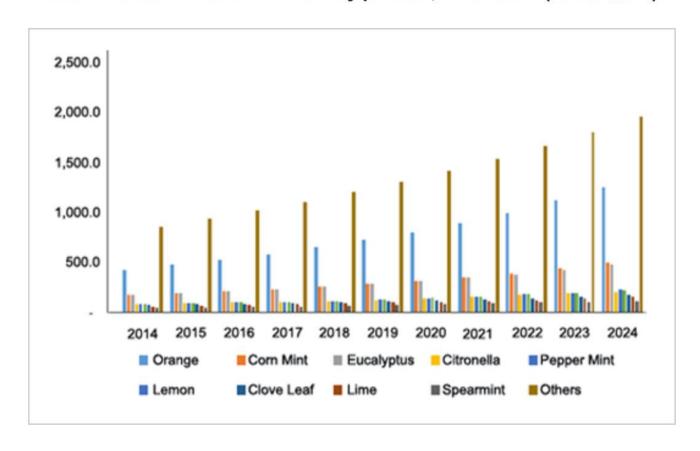
reactions to essential oils.

Source: 2013 Annual Report of the American Association of Poison Control Centers' National

Poison Data System (NPDS): 31st Annual Report

And, because of this...

U.S. essential oil market revenue by product, 2014 - 2024 (USD Million)



What are essential oils?



Essential oils vs. "fixed" oils



Essential Oils

- Volatile organic compounds (VOCs)
- Evaporate (can be distilled)
- Several extraction methods
- Dissolve in lipids / insoluble in water
- Not "oily" / leaves no residue

Essential oils vs. "fixed" oils



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Fixed Oils

- Non-volatile organic compounds
- Do not evaporate (cannot be distilled)
- Expressed or solvent extracted
- Contains fatty acids (triglycerides)
- Examples: coconut, olive, grapeseed

Essential oil properties

Essential Oils...

- 1. Are transdermal
- 2. Easily cross cell membrane
- 3. Even when cell transports aren't working!
- 4. Can do what many drugs cannot
- 5. Can pass through blood brain barrier
- 6. Cell-selectivity
- 7. Are not without risks



"And the leaves of the tree were for the healing of the nations."

~ Revelation 22:2

Myth buster

1) Purity doesn't guarantee a desirable therapeutic effect



Myth buster

Purity doesn't guarantee a desirable therapeutic effect
 Purity doesn't guarantee safety



Importance of safety

Keeping Everything in Context

- Highly concentrated chemicals
- Drug interactions have been established
- Can cause harm when not used properly

* Important to consult with your physician before using essential oils if currently taking medication.



Risks from misuse



Risks from misuse





3 ways to use essential oils

1. Topical



2. Inhalation



3. Ingestion



Topical use



Key Takeaways:

- Preferred method ("two-for-one")
- 2. Most effective approach
- 3. Dilute, dilute, dilute!
- 4. Organoleptic evaluation
- 5. Skin Patch Test

* Discontinue use if experiencing rash, burning or discomfort. This is NOT detox!

Inhalation



Key Takeaways:

- 1. Always use devices in a well-ventilated room* Especially if you have children or pets! *
- 2. Go slow and start small
- 3. Organoleptic evaluation
- * Discontinue use if experiencing headaches, experience sinus issues, etc.

Ingestion

Key Takeaways:

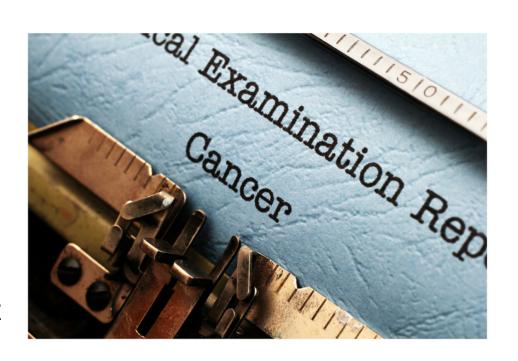


- 1. Not all oils are safe to ingest
- 2. Greatest potential for drug interactions
- 3. Oil & water don't mix (need a fixed oil)
- 4. Culinary dosages GRAS (1-2 drops)
- 5. Use gel capsules (add carrier for absorbability)
- * Consult physician if taking medication
- * Discontinue use if experiencing reflux

No standard protocol

Why?

- 1. Biochemical individuality
- 2. Different types of cancer
- 3. Environmental triggers
- 4. Lifestyles vary
- 5. EO brands are different
- 6. EO chemistry is not constant



Essential oils & energy

EOs Promote Deep Breathing

(Increases oxygen intake in cells through increased blood flow)

Cellular respiration is a set of metabolic reactions and processes that take place in the cells of organisms to convert chemical energy from oxygen molecules or nutrients into adenosine triphosphate, and then release waste products.

Essential oils & energy

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EOs Oxygenate Cells Directly

(Rich in oxygenated compounds: esters, aldehydes, ketones, alcohols, phenols, and oxides)

Essential oils are...

"The highest level of oxygenating molecules of any substance on Earth. Because the oils are so highly concentrated, they are at least 50 times more therapeutically potent than the plant itself or herbs made from the plant."

Jane G. Goldberg, Ph.D.

Best EOs for energy

- Peppermint / spearmint
- Eucalyptus
- Pine
- Rosemary
- Laurel leaf
- Lemon
- Cardamom
- Ravintsara

- Juniper berry
- French basil
- Thyme
- Frankincense
- Ginger
- Wintergreen
- Lemongrass
- Citrus oils!

Instant effects of peppermint essential oil on the physiological parameters and exercise performance

Objective: Effect of peppermint on exercise performance was previously investigated but equivocal findings exist. This study aimed to investigate the effects of peppermint ingestion on the physiological parameters and exercise performance after 5 min and 1 h.

Materials and Methods: Thirty healthy male university students were randomly divided into experimental (n=15) and control (n=15) groups. Maximum isometric grip force, vertical and long jumps, spirometric parameters, visual and audio reaction times, blood pressure, heart rate, and breath rate were recorded three times: before, five minutes, and one hour after single dose oral administration of peppermint essential oil (50 μl). Data were analyzed using repeated measures ANOVA.

Results: Our results revealed significant improvement in all of the variables after oral administration of peppermint essential oil. Experimental group compared with control group showed an <u>incremental and a significant</u> increase in the grip force (36.1%), standing vertical jump (7.0%), and standing long jump (6.4%). Data obtained from the experimental group after five minutes exhibited a <u>significant</u> increase in the forced vital capacity in first second (FVC₁)(35.1%), peak inspiratory flow rate (PIF) (66.4%), and peak expiratory flow rate (PEF) (65.1%), whereas after one hour, only PIF shown a significant increase as compare with the baseline and control group. At both times, visual and audio reaction times were significantly decreased. Physiological parameters were also significantly improved after five minutes. A considerable enhancement in the grip force, spiromery, and other parameters were the important findings of this study.

Conclusion: An improvement in the spirometric measurements (FVC₁, PEF, and PIF) might be due to the peppermint effects on the bronchial smooth muscle tonicity with or without affecting the lung surfactant. Yet, no scientific evidence exists regarding isometric force enhancement in this novel study.

The effect of inhalation of orange and spearmint essential oils on lung function and exercise performance

BACKGROUND: Recently, there has been an increased interest in the effects of essential oils on athletic performances and other physiological effects. This study aimed to assess the effects of *Citrus sinensis* flower and *Mentha spicata* leaves essential oils inhalation in two different groups of athlete male students on their exercise performance and lung function.

METHODS: Twenty physical education students volunteered to participate in the study. The subjects were randomly assigned into two groups: *Mentha spicata* and *Citrus sinensis* (ten participants each). One group was nebulized by *Citrus sinensis* flower oil and the other by *Mentha spicata* leaves oil in a concentration of (0.02 ml/kg of body mass) which was mixed with 2 ml of normal saline for 5 min before a 1500 m running tests. Lung function tests were measured using a spirometer for each student pre and post nebulization giving the same running distance pre and post oils inhalation.

RESULTS: A lung function tests showed an improvement on the lung status for the students after inhaling of the oils. Interestingly, there was a significant increase in Forced Expiratory Volume in the first second and Forced Vital Capacity after inhalation for the both oils. Moreover significant reductions in the means of the running time were observed among these two groups. The normal spirometry results were 50 %, while after inhalation with *M. spicata* oil the ratio were 60 %.

CONCLUSION: Our findings support the effectiveness of *M. spicata* and *C. sinensis* essential oils on the exercise performance and respiratory function parameters. However, our conclusion and generalisability of our results should be interpreted with caution due to small sample size and lack of control groups, randomization or masking. We recommend further investigations to explain the mechanism of actions for these two essential oils on exercise performance and respiratory parameters.

Beneficial effect of compound essential oil inhalation on central fatigue

Backgrounds

Although the physical and mental enhancement effect of essential oils have been proved, the beneficial effect of essential oil in central fatigue remains unclear. In this study, we extracted essential oils from nine aromatic plants to make a compound essential oil, and detected the therapeutic effect of central fatigue by daily aerial diffusion.

Methods

Thirty-three rats were randomly and equally divided into control group, chronic sleep deprivation group, and compound essential oil inhalation group. Central fatigue was generated by chronic sleep deprivation.

Results

After 21-day various interferences, it is found that the sleep deprivation rats showed an evident decrease in physical endurance, negative emotion, and cognitive dysfunction compared with the control group, and the group that treated with the compound essential oil behaved significantly better than central fatigue group.

Conclusion

We concluded that this formula of essential oils could alleviate central fatigue on rats, and our study provides a new direction of application of aromatic therapy, which could be expanded to insomnia, depression and other healthy issue in the further research.

Oils Used

- Indian sandalwood
- Bitter orange
- Styrax benzoin
- Grapefruit
- Peppermint
- Shi Chang
- Rhodiola rosea
- Tea plant

BMC Complement Altern Med. 2018; 18: 309.

Effects of inhaled rosemary oil on subjective feelings and activities of the nervous system

Rosemary oil is one of the more famous essential oils widely used in aroma-therapy. However, the effects of rosemary oil on the human body, in particular the nervous system, have not been sufficiently studied. This study investigates the effects of the inhalation of rosemary oil on test subjects' feelings, as well as its effects on various physiological parameters of the nervous system. Twenty healthy volunteers participated in the experiment. All subjects underwent autonomic nervous system (ANS) recording. This consisted of measurements of skin temperature; heart rate; respiratory rate; blood pressure; evaluations of the subjects' mood states; and electroencephalography (EEG) recordings in the pre-, during treatment, and post-rosemary inhalation periods as compared with control conditions. Our results showed significant increases in blood pressure, heart rate, and respiratory rate after rosemary oil inhalation. After the inhalation treatments, subjects were found to have become more active and stated that they felt "fresher". The analysis of EEGs showed a reduction in the power of alpha1 (8–10.99 Hz) and alpha2 (11–12.99 Hz) waves. Moreover, an increment in the beta wave (13–30 Hz) power was observed in the anterior region of the brain. These results confirm the stimulatory effects of rosemary oil and provide supporting evidence that brain wave activity, autonomic nervous system activity, as well as mood states are all affected by the inhalation of the rosemary oil.

Sci Pharm. 2013 Apr-Jun; 81(2): 531-542.

Best EOs for mood

EOs Enhance Mood

(Mental state correlates to perceived energy levels)

- Geranium
- Clary sage
- Ylang ylang
- Lavender
- Frankincense
- Myrrh
- Palmarosa
- Rose

- Angelica
- Valerian root
- Vetiver
- Cedarwood
- Roman & German chamomile
- Melissa
- Sandalwood
- Citrus oils!

The effectiveness of aromatherapy for depressive symptoms: a systematic review

Background. Depression is one of the greatest health concerns affecting 350 million people globally. Aromatherapy is a popular CAM intervention chosen by people with depression. Due to the growing popularity of aromatherapy for alleviating depressive symptoms, in-depth evaluation of the evidence-based clinical efficacy of aromatherapy is urgently needed. Purpose. This systematic review aims to provide an analysis of the clinical evidence on the efficacy of aromatherapy for depressive symptoms on any type of patients. Methods. A systematic database search was carried out using predefined search terms in 5 databases: AMED, CINHAL, CCRCT, MEDLINE, and PsycINFO. Outcome measures included scales measuring depressive symptoms levels. Results. Twelve randomized controlled trials were included and two administration methods for the aromatherapy intervention including inhaled aromatherapy (5 studies) and massage aromatherapy (7 studies) were identified. Seven studies showed improvement in depressive symptoms. Limitations. The quality of half of the studies included is low, and the administration protocols among the studies varied considerably. Different assessment tools were also employed among the studies. Conclusions. Aromatherapy showed potential to be used as an effective therapeutic option for the relief of depressive symptoms in a wide variety of subjects. Particularly, aromatherapy massage showed to have more beneficial effects than inhalation aromatherapy.

Evid Based Complement Alternat Med. 2017; 2017: 5869315.

Acute effects of bergamot oil on anxiety-related behaviour and corticosterone level in rats

Bergamot essential oil (BEO), Citrus aurantium subsp. bergamia (Risso) Wright & Arn. (Rutaceae), is used widely in aromatherapy to reduce stress and anxiety despite limited scientific evidence. A previous study showed that BEO significantly increased gamma-aminobutyric acid levels in rat hippocampus, suggesting potential anxiolytic properties. The aim of this study was to investigate the effect of BEO (1.0%, 2.5% and 5.0% w/w) administered to rats on both anxiety-related behaviours (the elevated plus-maze (EPM) and hole-board tests) and stress-induced levels of plasma corticosterone in comparison with the effects of diazepam. Inhalation of BEO (1% and 2.5%) and injection of diazepam (1 mg/kg, i.p.) significantly increased the percentage of open arm entries on the EPM. The percentage time spent in the open arms was also significantly enhanced following administration of either BEO (2.5% and 5%) or diazepam. Total arm entries were significantly increased with the highest dose (5%), suggesting an increase in locomotor activity. In the hole-board test, 2.5% BEO and diazepam significantly increased the number of head dips. 2.5% BEO and diazepam attenuated the corticosterone response to acute stress caused by exposure to the EPM. In conclusion, both BEO and diazepam exhibited anxiolytic-like behaviours and attenuated HPA axis activity by reducing the corticosterone response to stress.

* NOTE *

Diazepam

(Benzodiazepine used to treat anxiety disorders, alcohol withdrawal symptoms, muscle spasms & seizures)

Sci Pharm. 2013 Apr-Jun; 81(2): 531-542.

Effects of olfactory stimulation from the fragrance of the Japanese citrus fruit yuzu on mood states and salivary chromogranin

Objective: This study investigated the soothing effects of fragrance from yuzu, a Japanese citrus fruit (*Citrus junos* Sieb. ex Tanaka), with salivary chromogranin A (CgA) used as an endocrinologic stress marker reflecting sympathetic nervous system activity.

Methods: Twenty healthy women (mean age, 20.5±0.1 years) participated in a randomized, controlled, crossover study. Participants were examined on two separate occasions—once using the yuzu scent and once using unscented water as a control—in the follicular phase. This experiment measured salivary CgA and the Profile of Mood States (POMS) as a psychological index before and after the aromatic stimulation.

Results: Ten-minute inhalation of the yuzu scent significantly decreased salivary CgA. At 30 minutes after the inhalation period, the salivary CgA level further decreased. In addition, POMS revealed that inhalation of the aromatic yuzu oil significantly decreased total mood disturbance, a global measure of affective state, as well as four subscores of emotional symptoms (tension-anxiety, depression-dejection, anger-hostility, and confusion), as long as 30 minutes after the olfactory stimulation.

Conclusions: Yuzu's aromatic effects may alleviate negative emotional stress, which, at least in part, would contribute to the suppression of sympathetic nervous system activity.

The effects of clinical aromatherapy for anxiety and depression in the high risk postpartum woman - a pilot study

OBJECTIVES: The aim of this study was to determine if aromatherapy improves anxiety and/or depression in the high risk postpartum woman and to provide a complementary therapy tool for healthcare practitioners.

DESIGN: The pilot study was observational with repeated measures.

SETTING: Private consultation room in a Women's center of a large Indianapolis hospital.

SUBJECTS: 28 women, 0-18 months postpartum.

INTERVENTIONS: The treatment groups were randomized to either the inhalation group or the aromatherapy hand m'technique. Treatment consisted of 15 min sessions, twice a week for four consecutive weeks. An essential oil blend of rose otto and lavandula angustifolia @ 2% dilution was used in all treatments. The non-randomized control group, comprised of volunteers, was instructed to avoid aromatherapy use during the 4 week study period. Allopathic medical treatment continued for all participants.

OUTCOME MEASUREMENTS: All subjects completed the Edinburgh Postnatal Depression Scale (EPDS) and Generalized Anxiety Disorder Scale (GAD-7) at the beginning of the study. The scales were then repeated at the midway point (two weeks), and at the end of all treatments (four weeks).

RESULTS: Analysis of Variance (ANOVA) was utilized to determine differences in EPDS and/or GAD-7 scores between the aromatherapy and control groups at baseline, midpoint and end of study. No significant differences were found between aromatherapy and control groups at baseline. The midpoint and final scores indicated that aromatherapy had significant improvements greater than the control group on both EPDS and GAD-7 scores. There were no adverse effects reported.

CONCLUSION: The pilot study indicates positive findings with minimal risk for the use of aromatherapy as a complementary therapy in both anxiety and depression scales with the postpartum woman. Future large scale research in aromatherapy with this population is recommended.

Complement Ther Clin Pract. 2012 Aug;18(3):164-8. doi: 10.1016/j.ctcp.2012.05.002. Epub 2012 Jun 27.

Changes in 5-hydroxytryptamine and cortisol plasma levels in menopausal women after inhalation of clary sage oil

The purpose of this study was to examine the antidepressant-like effects of clary sage oil on human beings by comparing the neurotransmitter level change in plasma. The voluntary participants were 22 menopausal women in 50's. Subjects were classified into normal and depression tendency groups using each of Korean version of Beck Depression Inventory-I (KBDI-I), KBDI-II, and Korean version of Self-rating Depression Scale. Then, the changes in neurotransmitter concentrations were compared between two groups. After inhalation of clary sage oil, cortisol levels were significantly decreased while 5-hydroxytryptamine (5-HT) concentration was significantly increased. Thyroid stimulating hormone was also reduced in all groups but not statistically significantly. The different change rate of 5-HT concentration between normal and depression tendency groups was variable according to the depression measurement inventory. When using KBDI-I and KBDI-II, 5-HT increased by 341% and 828% for the normal group and 484% and 257% for the depression tendency group, respectively. The change rate of cortisol was greater in depression tendency groups compared with normal groups, and this difference was statistically significant when using KBDI-II (31% vs. 16% reduction) and Self-rating Depression Scale inventory (36% vs. 8.3% reduction). Among three inventories, only KBDI-II differentiated normal and depression tendency groups with significantly different cortisol level. Finally, clary sage oil has antidepressant-like effect, and KBDI-II inventory may be the most sensitive and valid tool in screening for depression status or severity.

* NOTE *

5-hydroxytryptamine (Serotonin - the feel good neurotransmitter)

Phytother Res. 2014 Nov;28(11):1599-605. doi: 10.1002/ptr.5163. Epub 2014 May 7.

Effects of aroma hand massage on pain, state anxiety and depression in hospice patients with terminal cancer

PURPOSE: The purpose of this study was to examine the effects of aroma hand massage on pain, state anxiety and depression in hospice patients with terminal cancer.

METHODS: This study was a nonequivalent control group pretest-posttest design. The subjects were 58 hospice patients with terminal cancer who were hospitalized. Twenty eight hospice patients with terminal cancer were assigned to the experimental group (aroma hand massage), and 30 hospice patients with terminal cancer were assigned to the control group (general oil hand massage). As for the experimental treatment, the experimental group went through aroma hand massage on each hand for 5 min for 7 days with blended oil-a mixture of Bergamot, Lavender, and Frankincense in the ratio of 1:1:1, which was diluted 1.5% with sweet almond carrier oil 50 ml. The control group went through general oil hand massage by only sweet almond carrier oil-on each hand for 5 min for 7 days.

RESULTS: The aroma hand massage experimental group showed more significant differences in the changes of pain score (t=-3.52, p=.001) and depression (t=-8.99, p=.000) than the control group.

CONCLUSION: Aroma hand massage had a positive effect on pain and depression in hospice patients with terminal cancer.

Taehan Kanho Hakhoe Chi. 2008 Aug;38(4):493-502.

Brain function connection

The brain = largest source of energy consumption (~20% of total body oxygen metabolism)

Front. Mol. Neurosci., 22 June 2018 | https://doi.org/10.3389/fnmol.2018.00216 Int J Mol Sci. 2013 Jun; 14(6): 12780–12805 Oncol Lett. 2013 Oct; 6(4): 1140–1146.

Brain function connection

The brain = largest source of energy consumption (~20% of total body oxygen metabolism)

Sesquiterpenes cross blood brain barrier

→ can carry oxygen to brain

Front. Mol. Neurosci., 22 June 2018 | https://doi.org/10.3389/fnmol.2018.00216 Int J Mol Sci. 2013 Jun; 14(6): 12780–12805 Oncol Lett. 2013 Oct; 6(4): 1140–1146.

Brain function connection

EOs Rich in Sesquiterpenes

- Cedarwood
- Patchouli
- Vetiver
- Ginger
- Ylang Ylang
- Myrrh
- Citronella
- Juniper Berry

- Helichrysum
- Melissa
- Black Pepper
- Copaiba
- Frankincense
- Magnolia
- Manuka
- Turmeric

EOs for improved focus & brain function

- Geranium
- Clary sage
- Ylang ylang
- Lavender
- Frankincense
- Myrrh
- Palmarosa
- Rose

- Angelica
- Valerian root
- Vetiver
- Cedarwood
- Roman & German chamomile
- Melissa
- Sandalwood
- Citrus oils!

Important note about Alzheimer's

Lower Levels of *Acetylcholine*

(neurotransmitter that send messages between nerve cells)

Important note about Alzheimer's

Lower Levels of *Acetylcholine*

(neurotransmitter that send messages between nerve cells)

Acetylcholinesterase

Enzyme that breaks down acetylcholine

Interesting note about Alzheimer's

Lower Levels of *Acetylcholine*

(neurotransmitter that send messages between nerve cells)

Acetylcholinesterase

Enzyme that breaks down acetylcholine

Traditional Medical Approach

Prescribe *acetylcholinesterase inhibitors* to stop acetylcholine breakdown

Side effects of acetylcholinesterase inhibitors

- Vomiting
- Falling
- Dizziness
- Nausea
- Confusion
- Pneumonia
- Diarrhea
- Hallucinations

- Malaise
- Convulsions
- Rapid heart rate
- Heart disease
- Loss of consciousness
- Decreased appetite
- Unhealthy weight loss
- Death!

EOs act as acetylcholinesterase inhibitors!

- Spanish Sage
- Oregon Ash
- Australian Pine
- Black Pine

- Key Lime
- Bergamot
- Neroli
- Melissa

Power of Using EOs – Not Isolated Compounds

"Major anticholinesterase monoterpenoids from essential oils have been shown to act synergistically to inhibit AChE."

This Presentation is Part of Our Essential Oils for Abundant Living 10-Part Video Masterclass Series. <u>Watch a FREE Screening Here!</u>

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About Dr. Z



ERIC ZIELINSKI, D.C. has pioneered natural living and biblical health education since 2003. Trained as an aromatherapist, public health researcher, and chiropractor, Dr. Z started NaturalLivingFamily.com alongside his wife Sabrina Ann in 2014 to help people learn how to use natural remedies like essential oils safely and effectively. Now visited by more than six million natural health seekers every year, it has rapidly become the #1 source for Biblical Health and non-branded essential oils education online. Dr. Z is an accomplished researcher with several publications, conference proceedings and is committed to sharing the healing power of natural therapies at churches and events across the globe.

For Questions & Comments Contact: Support@NaturaLLivingFamily.com

